**Table 1a: Demographic characteristics of COVID-19 associated female patients (18-44 years old)by pregnancy status**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Total  n(%2) | Pregnant1  n(%2) | Not Pregnant  n(%2) | p-value6 |
| Total | 22,493 (100) | 1,609 (7.23) | 20,884 (92.83) |  |
| Age (Years)4 | 31 (25-38) | 29 (25-33) | 32 (25-38) | **<0.0017** |
| Age (Years) Categorized |  |  |  | **<0.001** |
| 18-24 | 4,913 (21.8) | 389 (24.2) | 4,524 (21.7) |  |
| 25-34 | 9,128 (40.6) | 910 (56.6) | 8,218 (39.4) |  |
| 35-44 | 8,452 (37.6) | 310 (19.3) | 8,142 (39.0) |  |
| Race and Ethnicity |  |  |  | **<0.001** |
| Non-Hispanic American Indian or Alaska Native | 517 ( 2.3) | 14 ( 0.9) | 503 ( 2.4) |  |
| Non-Hispanic Asian or Pacific Islander | 527 ( 2.3) | 40 ( 2.5) | 487 ( 2.3) |  |
| Non-Hispanic Black or African American | 3,966 (17.6) | 285 (17.7) | 3,681 (17.6) |  |
| Non-Hispanic White | 5,872 (26.1) | 446 (27.7) | 5,426 (26.0) |  |
| Non-Hispanic Other5 | 2,379 (10.6) | 264 (16.4) | 2,115 (10.1) |  |
| Hispanic or Latino | 9,232 (41.0) | 560 (34.8) | 8,672 (41.5) |  |
| Insurance |  |  |  | **<0.001** |
| Private | 11,010 (48.9) | 708 (44.0) | 10,302 (49.3) |  |
| Government/Misc | 819 ( 3.6) | 31 ( 1.9) | 788 ( 3.8) |  |
| Medicaid | 5,285 (23.5) | 580 (36.0) | 4,705 (22.5) |  |
| Medicare | 430 ( 1.9) | 13 ( 0.8) | 417 ( 2.0) |  |
| Self-Pay | 3,083 (13.7) | 121 ( 7.5) | 2,962 (14.2) |  |
| Missing | 1,866 ( 8.3) | 156 ( 9.7) | 1,710 ( 8.2) |  |
| Region8 |  |  |  | **<0.001** |
| Northeast | 3,493 (15.5) | 451 (28.0) | 3,042 (14.6) |  |
| Southeast | 10,134 (45.1) | 633 (39.3) | 9,501 (45.5) |  |
| Midwest | 2,969 (13.2) | 195 (12.1) | 2,774 (13.3) |  |
| West | 5,283 (23.5) | 184 (11.4) | 5,099 (24.4) |  |
| Missing | 614 (2.7) | 38 (2.4) | 468 (2.2) |  |

1 Defined by ICD-9 and ICD-10 codes

2 %=column percentage

3 % =out of total (22,493) percentage

4 median (Q1-Q3)

5 other or unknown

6 Chi-Square Test (unless otherwise noted)

7 Wilcoxon-Rank Sum Test

8 Northeast: 0 (Connecticut, Massachusetts, Maine, New Hampshire, New Jersey, Rhode Island, Vermont), 1 (Delaware, New York, Pennsylvania); Southeast: 2 (DC, Maryland, North Carolina, South Carolina, Virginia, West Virginia), 3 (Alabama, Florida, Georgia, Mississippi, Tennessee); Midwest: 4 (Indiana, Kentucky, Michigan, Ohio), 5 (Iowa, Minnesota, Montana, North Dakota, South Dakota, Wisconsin), 6 (Illinois, Kansas, Missouri, Nebraska), 7 (Arkansas, Louisiana, Oklahoma, Texas), West: 8 (Arizona, Colorado, Idaho, New Mexico, Nevada, Utah, Wyoming), 9 (Alaska, California, Hawaii, Oregon, Washington)

**Table 1b: Clinical characteristics of COVID-19 identified female patients (18-44 years old)by pregnancy status**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Characteristic | Pregnant1  n(%2) | Not Pregnant  n(%2) | | p-value4 |
| Total | 1,609 | | 20,884 |  |
| History of chronic diseases7 |  | |  |  |
| Congestive heart failure | 9 ( 0.6) | | 359 ( 1.7) | **<0.0015** |
| Cardiac arrhythmias | 167 (10.4) | | 2,224 (10.7) | 0.74 |
| Valvular disease | 22 ( 1.4) | | 299 ( 1.4) | 0.91 |
| Pulmonary circulation disorders | 12 ( 0.7) | | 344 ( 1.7) | **0.01** |
| Peripheral vascular disorders | 2 ( 0.1) | | 248 ( 1.2) | **<0.0015** |
| Hypertension, uncomplicated | 104 ( 6.5) | | 2,355 (11.3) | **<0.001** |
| Hypertension, complicated | 7 ( 0.4) | | 412 ( 2.0) | **<0.0015** |
| Paralysis | 0 ( 0.0) | | 141 ( 0.7) | **<0.0015** |
| Other neurological disorders | 35 ( 2.2) | | 904 ( 4.3) | **<0.001** |
| Chronic pulmonary disease | 203 (12.6) | | 3,640 (17.5) | **<0.001** |
| Diabetes, uncomplicated | 48 ( 3.0) | | 1,392 ( 6.7) | **<0.001** |
| Diabetes, complicated | 17 ( 1.1) | | 766 ( 3.7) | **<0.001** |
| Hypothyroidism | 81 ( 5.0) | | 1,042 ( 5.0) | >0.99 |
| Renal failure | 2 ( 0.1) | | 353 ( 1.7) | **<0.0015** |
| Liver disease | 26 ( 1.6) | | 948 ( 4.6) | **<0.001** |
| Peptic ulcer disease | 3 ( 0.2) | | 138 ( 0.7) | **0.015** |
| AIDS/HIV | 4 ( 0.2) | | 72 ( 0.3) | 0.665 |
| Lymphoma | 0 ( 0.0) | | 49 ( 0.2) | **0.0485** |
| Metastatic cancer | 1 ( 0.1) | | 82 ( 0.4) | **0.035** |
| Solid tumor without metastasis | 9 ( 0.6) | | 244 ( 1.2) | **0.03** |
| Rheumatoid arthritis/collagen vascular diseases | 16 ( 1.0) | | 459 ( 2.2) | **0.002** |
| Coagulopathy | 71 ( 4.4) | | 636 ( 3.1) | **0.003** |
| Obesity | 331 (20.6) | | 3,567 (17.1) | **<0.001** |
| Weight loss | 14 ( 0.9) | | 391 ( 1.9) | **0.01** |
| Fluid and electrolyte disorders | 265 (16.5) | | 3,313 (15.9) | 0.58 |
| Blood loss anemia | 15 ( 0.9) | | 196 ( 0.9) | >0.99 |
| Deficiency anemia | 88 ( 5.5) | | 1,021 ( 4.9) | 0.34 |
| Alcohol abuse | 15 ( 0.9) | | 502 ( 2.4) | **<0.001** |
| Drug abuse | 85 ( 5.3) | | 1,176 ( 5.6) | 0.58 |
| Psychoses | 14 ( 0.9) | | 304 ( 1.5) | *0.07* |
| Depression | 42 ( 2.6) | | 734 ( 3.5) | *0.06* |
| Elixhauser AHRQ weighted comorbidity (continuous score) | 0 (0-0)3 | | 0 (0-3)3 | **0.0016** |
| Elixhauser AHRQ weighted comorbidity (categorical score) |  | |  | **<0.001** |
| <0 | 386 (24.0) | | 4,166 (19.9) |  |
| 0 | 822 (51.1) | | 11,031 (52.8) |  |
| 1-4 | 116 ( 7.2) | | 2,237 (10.7) |  |
| >=5 | 285 (17.7) | | 3,450 (16.5) |  |
| COVID-19 Medications |  | |  |  |
| H[ydroxychloroquine](https://www.google.com/search?rlz=1C1GCEU_enUS890US890&q=Hydroxychloroquine&spell=1&sa=X&ved=2ahUKEwj4toq_t9DrAhUTU80KHWX-CfgQkeECKAB6BAgSECc) | 38 ( 2.4) | | 525 ( 2.5) | 0.77 |
| Remdesivir | 3 ( 0.2) | | 39 ( 0.2) | >0.99 |
| Decadron or Prednisone | 36 ( 2.2) | | 1,029 ( 4.9) | **<0.001** |
| Aspirin and Plavix | 0 ( 0.0) | | 22 ( 0.1) | 0.40 |
| Other anticoagulant | 219 (13.6) | | 1,721 ( 8.2) | **<0.001** |
| History of Gestational Diabetes | 163 (10.1) | | 411 (2.0) | **<0.001** |

1 Defined by ICD-9 and ICD-10 codes; 2 %=column percentage; 3 median (Q1-Q3)

4 Chi-square test (unless otherwise noted); 5 Fisher’s Exact test

6 Wilcoxon Rank-Sum Test; 7 Up till January 1, 2015 (these are the diseases that make up the Elixhauser comorbidity index);

**Table 2: Complications in COVID-19 associated pregnant and non-pregnant women (18-44 years old)**

|  |  |  |  |
| --- | --- | --- | --- |
| Outcome | Pregnant  n(%1) | Not Pregnant  n(%1) | p-value5 |
| Hospitalized | **974 (60.5)** | **3,546 (17.0)** | **<0.001** |
| Maximum length of hospital stay (Less than one day)2 | **0.15 (0.08-0.23)** | **0.08 (0.05-0.14)** | **<0.0016** |
| Maximum length of hospital stay (One day or greater)2 | **2.55 (2.02-3.43)** | **3.32 (2.05-6.59)** | **<0.0016** |
| Moderate Ventilator Dependence3 | **28 (1.7)** | **149 (0.7)** | **<0.001** |
| Invasive Ventilator Dependence4 | 26 (1.6) | 396 (1.9) | 0.48 |
| Deceased | 4 (0.2) | 100 (0.5) | 0.26 |

1 %=column percentage

2 Days, median (Q1-Q3)

3 Less-invasive ventilator indications like CPAP or BIPAP machines

4 More severe and invasive ventilator indications, including tracheostomy

5 Chi-squared test (unless otherwise noted)

6 Wilcoxon Rank Sum Test

**Table 3**:Adjusted association of pregnancy and other clinical and demographic variables, with hospitalization, maximum length of hospital stay, moderate ventilator dependence, invasive ventilator dependence, and death, among COVID-19 associated female patients (18-44 years old)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variables | Hospitalization | Max LOS  (<1 Day) | Max LOS  (>=1 Day) | Moderate Ventilator Dependence | Invasive Ventilator Dependence | Death |
|  | aOR1 (95% CI) | 2 (95% CI) | 2 (95% CI) | aOR1 (95% CI) | aOR1 (95% CI) | aOR1 (95% CI) |
| Pregnant |  |  |  |  |  |  |
| No | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] |
| Yes | **12.26 (10.69, 14.06)** | **1.78 (1.67, 1.90)** | **0.90 (0.85, 0.95)** | **2.35 (1.48, 3.74)** | 0.89 (0.57, 1.40) | 0.83 (0.30, 2.33) |
| Age (years) [5 years increment]3 | **1.07 (1.03, 1.10)** | **1.03 (1.02, 1.04)** | **1.04 (1.02, 1.06)** | 1.07 (0.96, 1.19) | **1.19 (1.10, 1.28)** | **1.21 (1.05, 1.40)** |
| Race and Ethnicity |  |  |  |  |  |  |
| Non-Hispanic White | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] |
| Non-Hispanic American Indian or Alaska Native | **1.43 (1.05, 1.94)** | **0.84 (0.77, 0.93)** | **1.47 (1.27, 1.70)** | 2.19 (0.99, 4.86) | **3.83 (2.19, 6.70)** | **2.76 (1.12, 6.77)** |
| Non-Hispanic Asian or Pacific Islander | 1.21 (0.93, 1.59) | 1.02 (0.94, 1.11) | **1.21 (1.06, 1.38)** | 0.75 (0.23, 2.48) | 1.22 (0.65, 2.28) | 1.58 (0.53, 4.73) |
| Non-Hispanic Black or African American | 0.91 (0.79, 1.04) | **1.10 (1.06, 1.14)** | 1.07 (1.00, 1.14) | 1.08 (0.69, 1.68) | 0.79 (0.58, 1.08) | 1.12 (0.63, 1.99) |
| Non-Hispanic Other | 1.09 (0.93, 1.28) | **1.05 (1.02, 1.09)** | 1.01 (0.95, 1.07) | 1.26 (0.75, 2.13) | 0.86 (0.58, 1.27) | 1.84 (0.93, 3.66) |
| Hispanic or Latino | **0.85 (0.75, 0.96)** | 0.99 (0.94, 1.03) | 1.07 (1.00, 1.16) | 0.92 (0.59, 1.42) | 0.70 (0.51, 0.95) | 0.83 (0.47, 1.48) |
| Insurance |  |  |  |  |  |  |
| Private | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] |
| Government/Misc | 0.82 (0.64, 1.06) | **0.91 (0.85, 0.97)** | 0.97 (0.85, 1.11) | 1.46 (0.61, 3.53) | 1.06 (0.55, 2.05) | **1.98 (1.16, 3.40)** |
| Medicaid | **1.46 (1.30, 1.64)** | **1.15 (1.11, 1.19)** | **1.13 (1.07, 1.19)** | 1.36 (0.91, 2.03) | 1.21 (0.91, 1.61) | 2.01 (0.88, 4.60) |
| Medicare | **1.43 (1.06, 1.93)** | **1.29 (1.17, 1.43)** | 1.03 (0.92, 1.17) | 1.03 (0.46, 2.28) | 0.91 (0.54, 1.52) | 1.39 (0.62, 3.11) |
| Self-Pay | **0.79 (0.67, 0.93)** | 0.98 (0.95, 1.02) | 0.98 (0.90, 1.07) | 1.45 (0.86, 2.47) | 0.88 (0.57, 1.36) | 1.39 (0.62, 3.11) |
| Missing | **2.00 (1.71, 2.33)** | 1.01 (0.96, 1.07) | **1.19 (1.11, 1.27)** | **1.74 (1.05, 2.90)** | **2.10 (1.51, 2.93)** | **2.17 (1.16, 4.05)** |
| Elixhauser AHRQ weighted Comorbidity Score [10 units increment]4 | **1.96 (1.84, 2.08)** | **1.12 (1.09, 1.14)** | **1.16 (1.13, 1.18)** | **1.37 (1.19, 1.57)** | **1.38 (1.32, 1.44)** | **3.15 (2.76, 3.61)** |
| Gestational Diabetes |  |  |  |  |  |  |
| No | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] |
| Yes | **1.58 (1.24, 2.01)** | 0.98 (0.90, 1.07) | 0.96 (0.87, 1.06) | 0.86 (0.38, 1.94) | 0.79 (0.41, 1.53) | - |
| Decadron and Prednisone |  |  |  |  |  |  |
| No | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] |
| Yes | **2.15 (1.78, 2.59)** | **1.28 (1.20, 1.36)** | **1.26 (1.17, 1.35)** | **2.49 (1.68, 3.69)** | **2.34 (1.77, 3.11)** | - |
| Anticoagulant |  |  |  |  |  |  |
| No | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] | 1 [Reference] |
| Yes | **72.73 (61.15, 86.50)** | **3.67 (3.27, 4.12)** | **1.36 (1.30, 1.43)** | **12.11 (8.53, 17.18)** | **13.76 (10.82, 17.50)** | - |
| AUC | 0.89 | - | - | 0.88 | 0.93 | 0.90 |
| R2 | - | 0.12 | 0.15 | - | - | - |

1 Adjusted odds ratio from mixed-effect logistic regression model (clustering on one-digit zip-code)

2 adjusted exponentiated coefficients (mixed-effect exponential regression model clustering on one-digit zip-code) relating to percentage change in expected maximum length of hospital stay

3 Change in odds (or change in % of response for exponential model) for each 5 unit increase in predictor

4Change in odds (or change in % of response for exponential model) for each 10 unit increase in predictor

**Table 4:** Stratified sensitivity analyses of the adjusted association of pregnancy with hospitalization, maximum length of hospital stay, moderate ventilator dependence, invasive ventilator dependence, and death, among COVID-19 associated female patients (18-44 years old)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variables | Hospitalization | Max LOS  (<1 Day) | Max LOS  (>=1 Day) | Moderate Ventilator Dependence | Invasive Ventilator Dependence | Death |
|  | aOR (95% CI) | (95% CI) | (95% CI) | aOR (95% CI) | aOR (95% CI) | aOR(95% CI) |
| Age (Years) |  |  |  |  |  |  |
| 18-34 | **12.79 (10.94, 14.94)1** | **1.74 (1.62, 1.87)** | **0.92 (0.86, 0.98)** | 1.06 (0.24, 4.66) | 0.93 (0.53, 1.63) | 0.65 (0.20, 2.18) |
| 35-44 | **11.71 (8.63, 15.88)** | **1.90 (1.63, 2.22)** | 0.93 (0.82, 1.06) | **3.74 (1.65, 8.52)** | 0.93 (0.43, 2.03) | 1.10 (0.15, 8.28) |
| Race and Ethnicity |  |  |  |  |  |  |
| Non-Hispanic White | **12.64 (9.79, 16.32)** | **1.89 (1.63, 2.20)** | **0.89 (0.80, 0.99)** | 1.62 (0.60, 4.37) | 1.17 (0.52, 2.61) | 0.75 (0.10, 5.77) |
| Non-Hispanic American Indian or Alaska Native | **13.15 (3.46, 50.02)** | 1.75 (0.74, 4.15) | **0.49 (0.28, 0.84)** | -2 | - | 8.08 (0.56, 115.45) |
| Non-Hispanic Asian or Pacific Islander | **12.58 (5.14, 30.76)** | **1.71 (1.01, 2.89)** | 0.76 (0.54, 1.06) | - | - | - |
| Non-Hispanic Black or African American | **9.85 (7.12, 13.63)** | **1.55 (1.35, 1.79)** | 0.89 (0.77, 1.03) | **4.51 (1.96, 10.39)** | 1.54 (0.64, 3.72) | 1.46 (0.18, 12.07) |
| Non-Hispanic Other | **15.14 (10.08, 22.75)** | **2.22 (1.81, 2.74)** | 0.91 (0.81, 1.03) | **6.40 (2.68, 15.28)** | 1.19 (0.45, 3.13) | 0.59 (0.07, 4.79) |
| Hispanic or Latino | **11.77 (9.33, 14.86)** | **1.72 (1.57, 1.89)** | 0.97 (0.87, 1.07) | 1.63 (0.55, 4.78) | 1.04 (0.43, 2.48) | - |
| Insurance |  |  |  |  |  |  |
| Private | **16.23 (13.12, 20.08)** | **1.79 (1.64, 1.96)** | 0.96 (0.88, 1.05) | **3.81 (1.89, 7.66)** | 1.18 (0.58, 2.40) | 0.59 (0.07, 4.70) |
| Government/Misc | **8.05 (3.31, 19.58)** | 1.40 (0.91, 2.17) | 1.02 (0.69, 1.51) | - | - | - |
| Medicaid | **9.75 (7.79, 12.22)** | **1.75 (1.55, 1.97)** | **0.88 (0.80, 0.97)** | **2.87 (1.40, 5.88)** | 1.52 (0.80, 2.89) | 1.38 (0.39, 4.82) |
| Medicare | 3.16 (0.84, 11.83) | 1.30 (0.68, 2.46) | 2.00 (0.92, 4.35) | - | - | - |
| Self-Pay | **10.05 (6.14, 16.47)** | **1.93 (1.58, 2.35)** | 1.03 (0.84, 1.27) | **5.55 (1.54, 20.00)** | - | - |
| Missing | **11.64 (6.93, 19.54)** | **1.82 (1.31, 2.51)** | **0.82 (0.71, 0.96)** | 0.58 (0.07, 4.47) | 0.86 (0.30, 2.46) | - |
| Elixhauser AHRQ weighted Comorbidity Index |  |  |  |  |  |  |
| <0 | **10.96 (8.29, 14.50)** | **1.80 (1.54, 2.11)** | **0.87 (0.78, 0.96)** | **3.41 (1.42, 8.17)** | 0.96 (0.33, 2.80) | **-** |
| 0 | **24.46 (19.93, 30.02)** | **1.79 (1.65, 1.94)** | 0.95 (0.88, 1.03) | **3.41 (1.06, 10.98)** | 1.05 (0.31, 3.54) | **-** |
| 1-4 | **9.10 (5.57, 14.87)** | **1.55 (1.25, 1.92)** | 0.93 (0.74, 1.16) | **3.67 (1.02, 13.18)** | 0.98 (0.23, 4.21) | **-** |
| >=5 | **3.15 (2.29, 4.34)** | **1.68 (1.39, 2.03)** | 0.94 (0.82, 1.07) | **2.00 (1.07, 3.75)** | 1.03 (0.59, 1.80) | 1.07 (0.38, 3.07) |
| Diabetes History |  |  |  |  |  |  |
| No | **12.12 (10.55, 13.92)** | **1.78 (1.67, 1.90)** | **0.88 (0.83, 0.93)** | **3.14 (1.92, 5.14)** | 1.03 (0.64, 1.67) | 1.27 (0.45, 3.61) |
| Yes | **10.81 (4.66, 25.07)** | **2.30 (1.24, 4.26)** | 0.97 (0.73, 1.29) | - | 0.59 (0.14, 2.58) | - |

1 Odds/percentage change of **column outcome** for those pregnant compared to those not among **row group,** adjusted for all other predictors in Table 3 for sufficient sample sizes, COVID-19 medications and disease history (upon need) removed for insufficient sample sizes;

2 “-“=Insufficient sample size